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The International Sanitary Convention of 1944

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INTERNATIONAL Sanitary Conventions are of interest to epidemiologists as they represent the practical application of accumulated medical knowledge and are designed to prevent or control the spread of epidemics from one country to another with the minimum of inconvenience to international traffic.

To understand the new Conventions, and the reasons which led to their being drawn up during the turmoil of a great war it is desirable briefly to review the history of International Sanitary Conventions which govern the maximum measures that may be imposed at sea or air ports to prevent the importation of the more dangerous infectious diseases by means of maritime commerce or air travel.

Such measures are even now commonly spoken of as "Quarantine" but the word quarantine has long lost its original meaning and thanks to the progress of medical knowledge the old days when vessels might be burnt or mariners hanged in an attempt to prevent disease being introduced have passed for ever.

Nevertheless it is of interest to recall that as late as 1833 under the Quarantine Act of Western Australia [1], which expressed the official attitude of the period, if a vessel were liable to quarantine and had not entered at one of the ports prescribed, then the Master might be obliged "*either by firing of guns upon such vessel* or by any other kind of necessary force whatsoever" to proceed to a port appointed for the purpose. And, that even in 1865 when the sailing barque *Hecla* arrived at Swansea with cases of yellow fever on board and the disease afterwards spread to the town, so much alarm was created that the vessel was sent to sea under threats of being burnt if she lay in the dock another night [2].

The introduction of plague (or the black death) from the Crimea to Genoa in the fourteenth century led to attempts at maritime quarantine and the Quarantine Code drawn up in Venice in 1348 served for hundreds of years as a model to other countries. In England in 1664 Quarantine Regulations were adopted which aimed particularly at control of infection coming from the Levant and took into account both the state of health of the port of departure and the state of health of the ship before departure *but not during the voyage.* They included provisions that no vessel should leave any port in Turkey or Egypt without a Bill of Health and no Bill of Health was to be given until the expiration of forty days from even a single case of plague in the port of departure. Bills of Health can therefore perhaps be considered as the early forerunner of the modern system of international epidemiological information. They have long outlived any useful purpose they originally served and have been supplanted by the cable and "wireless" but it is only in the Convention of 1944 that definite provisions have been made for their abolition. Up to 1710 when the first Quarantine Act of Parliament was passed in England, all restrictions in England were in the shape of regulations issued by the King in Council. The history of quarantine procedures is not the subject of this paper but one provision of the Act of 1710 may be quoted as indicating the grounds on which trouble might have arisen if this practice had been applied to foreign shipping and the need for some international code. In the second section of the Act it is enacted that "After the 25th December, 1710, if any Master, etc. shall go on Shoar, etc. or permit any person so to do, without licence, the ship etc. shall be forfeited to the Queen".

Countries generally were concerned only in attempts to protect themselves against "pestilence" brought to their shores and it was only under the urge of the great cholera outbreak in Europe in 1848-50 that the first steps were taken to create some international co-operation in maritime quarantine. (In England and Wales alone in 1848-49 about 72,000 persons fell victim to the disease [3].) Moved by the varying regulations governing maritime quarantine, the French Government in 1851 convened the first international conference to discuss the adoption of a uniform code, and a

Convention, based largely on the then existing French practice, was drawn up but this was hardly a success and was only ratified by three countries.[1]

Between 1851 and 1903 nine other conferences were convened by various governments and though progress was made—for instance at Washington in 1881, when official recognition was first given to a limited exchange of epidemiological information and at Paris in 1894 when mutual arrangements were settled for the Mecca Pilgrimage—it was not until 1903 that a conference in Paris prepared the first International Sanitary Convention which dealt both with cholera and with plague and recognized the part played by rats in the spread of the latter disease. This Conference also adopted the proposals, first made at Vienna in 1874, to establish an international health office and under the Agreement drawn up in Rome in 1907 the Office international d'Hygiène publique was established in 1909 with permanent headquarters in Paris.

The Pan-American Sanitary Bureau, with headquarters in Washington, had already been established in 1902, and carries out for the Republics of North and South America work similar to that which the Paris Office did for the world generally. It also functions as a regional bureau of the Office international d'Hygiène publique under the International Sanitary Convention of 1926. Two other quasi-international bodies also existed when the Paris office was set up, viz. the Constantinople Superior Board of Health which dated from 1838 and the Quarantine Board of Egypt whose beginnings go back to 1831 when Mahommed Ali called on the European Consular body in Alexandria to organize and apply measures against plague and other infectious diseases.

The Constantinople Board of Health maintained a sanitary service (1) at the chief ports of the Black Sea, in the Dardanelles and on the coast of Asia Minor (2) in the Red Sea and for the Mecca Pilgrimage and (3) on the Turko-Persian frontier and for the Shiah pilgrimage. Its functions came to an end at the outbreak of war in 1914 and it was formally wound up in 1923 under the Treaty of Lausanne.

The Quarantine Board of Egypt, which in a large measure was regulated by successive International Sanitary Conventions, had its headquarters in Alexandria. Its main functions were the protection of Egypt from invasion by infectious diseases on its frontiers, particularly its seaports, and the protection of the countries in the Mediterranean and beyond by means of the control it exercised over the transit of vessels arriving from the South and passing through the Suez Canal. In addition it had various special health responsibilities in regard to the Mecca pilgrimage and pilgrim ships. It was abolished and its powers were taken over by the Egyptian sanitary authorities early in 1939 under the International Sanitary Convention of 1938 which modified the articles of the International Sanitary Convention of 1926 pertaining to the Sanitary, Maritime and Quarantine Board of Egypt as it was then named.

To return to the history of the International Sanitary Conventions the growth of epidemiological knowledge gradually rendered out of date the provisions drawn up in 1903 and in 1912 following a conference in Paris a new Convention was prepared.

When the Office international d'Hygiène publique resumed its international activities after the Great War of 1914-18 several sessions of the Permanent Committee were devoted to preparing a New Convention and after a formal conference in Paris, which lasted several weeks, the International Sanitary Convention of 1926 was signed by the representatives of 66 countries and subsequently ratified by 44.

As this Convention is still in force, though modified by the amending International Sanitary Convention of 1944, a very short summary of its principal provisions must be given. After some preliminary definitions the Convention is divided into five parts. Part I deals with provisions to be observed by the Governments of countries which are contracting parties to the Convention, on the appearance in their territory of plague, cholera, yellow fever, epidemic typhus and smallpox and the measures to be taken against the spread of these diseases (Articles 1-66). Part II deals with special provisions for the Suez Canal and neighbouring countries (Articles 67-90). Part III gives the special provisions regarding pilgrimages (Articles 91-162). Part IV deals with the

[1] Following the failure of the 1851 Conference the French Government called another conference in 1859 in Paris which drew up a Convention on much broader lines. Political events in Europe doomed this Convention also to failure, but in 1866 the French Government again convened a conference this time in Constantinople which met with greater success, particular attention being paid to cholera owing to the fear of its spread by the Mecca pilgrims. Eight years later, in 1874, the Austrian Government at the instance of Russia, convened a conference in Vienna which adopted principles of quarantine, much in line with modern practice and suggested the establishment of a permanent international sanitary commission. The next conference was convened by the United States at Washington in 1881 when official recognition was first given to the international notification of the more dangerous infectious diseases. Other conferences followed: at Rome in 1885 and at Venice in 1892 when, as a result of the generally felt need to control the introduction of cholera from the East into the Mediterranean basin, via the Suez Canal, which had been opened in 1869, a formal sanitary convention between countries first appeared. These agreements were extended by a conference in 1893 at Dresden, while in 1894, another international conference in Paris settled mutual arrangements for the sanitary regulation of the Pilgrimage to Mecca and questions of quarantine in the Persian Gulf.

The revival of plague in Bombay in 1896 and its rapid extension to various parts of the world led to a conference in Venice in 1897 and a further conference in Paris in 1903.

Sanitary, Maritime and Quarantine Board of Egypt (Articles 163-167 now amended) and Part V contains the final provisions regarding ratification, &c.

Time does not permit of any detailed analysis of this Convention but it should be emphasized that the Convention provides for the immediate notification by every Government to other Governments and to the Office international d'Hygiène publique of cases of plague (including rodent plague), cholera, yellow fever, epidemic typhus and smallpox—often spoken of as the five "Convention" diseases. When the 1926 Conference was held delegates still had in mind the disastrous Pandemic of Influenza in 1918-19 but a proposal to include influenza among the diseases dealt with by the Convention was not accepted. The Convention prescribes the measures which must be taken in ports to prevent the exportation of infection by vessels and also those which may be applied to ships on arrival. These latter measures are laid down as maxima beyond the limits of which Port Health Authorities may not go, the spirit of the Convention being to avoid unnecessary interference with ships, passengers and cargoes by rigid quarantine methods and to rely on the quick detection of the occurrences of infectious disease.

With the development of international air traffic[1] it soon became apparent that some analogous code must be drawn up to apply to aerial navigation and the Committee of the Paris Office, in consultation with the International Commission on Air Navigation drafted the text of a Convention which after consideration by Governments and redrafting was circulated as a final text in 1932, opened for signature at the Hague in 1933 and following ratification by ten countries formally came into force in 1933 as the International Sanitary Convention for Aerial Navigation (1933). This Convention has not been so widely accepted as the International Sanitary Convention of 1926 and in the Western hemisphere has only been ratified or adhered to by Brazil, Bolivia, Chile and the United States.

The Convention deals with the five "Convention" diseases (plague, cholera, yellow fever, typhus and smallpox) and the measures prescribed are again to be regarded as a maximum. Definitions are given, for the purposes of the Convention, of authorized, sanitary and anti-amaryl aerodromes, &c., and a detailed code is provided against the spread of yellow fever by air traffic. Bills of Health "which in modern times have proved such an irksome and profitless formality in the case of shipping"[4] are not required.

There are various other International Conventions or Agreements dealing with health matters but they are outside the scope of this paper and we can now proceed to the Conventions of 1944 and the reasons for their preparation.

On November 9, 1943 (after much preliminary work both in this country and the U.S.A.), the representatives of the 44 United and Associated Nations signed at the White House, Washington, an agreement establishing the United Nations Relief and Rehabilitation Administration—commonly spoken of as UNRRA. The next day the representatives of these nations met at Atlantic City, in the First Session of the Council established by the agreement, to provide for the organization of the Administration and to lay down the broad policies to guide its activities. Only two of the aims and activities of UNRRA concern us to-day, viz.: The giving of aid in the prevention of pestilence . . . and the return of prisoners and exiles to their homes. The exact number of exiles or "displaced persons" is not known but it was estimated that there were in Europe alone, in the summer of 1944, at least 10,000,000 persons outside their own national territory.

It was also estimated that the chief diseases to be guarded against were epidemic (louse-borne) typhus fever and malaria, but outbreaks of relapsing fever, smallpox, diphtheria, scarlet fever, cerebrospinal fever, influenza, dysentery, the typhoid fevers, Asiatic cholera and the infectious diseases of childhood may occur. A high prevalence of certain other communicable and deficiency diseases, such as pulmonary tuberculosis, rickets and scurvy will also be encountered.

To advise the Administration of UNRRA on the health aspects of these problems a health Committee was set up. The special health problems of displaced persons and the fear of epidemics in countries, liberated from German and Japanese barbarism, pointed to the necessity for making adequate plans to deal with the conditions envisaged and this led to the examination of the International Sanitary Conventions of 1926 and 1933 with a view to appraising whether additional or amending powers were required. As Paris was then in enemy hands and no help could be obtained from the Office international d'Hygiène publique, two expert Commissions were appointed, viz. one on the health problems of "Displaced Persons" and the other on Quarantine. The recommendations of the Commission on the health problems of displaced persons were adopted by the European Committee of UNRRA and they form the basis of a draft

[1] The Atlantic was first flown in June 1919 by Alcock and Brown, and the first flight from England to Australia was made in November 1919 by Ross Smith and Keith Smith, who traversed over 11,000 miles.

agreement between Governments, which has now been circulated for signature, and is complementary to the Conventions of 1944.

The terms of reference to the Commission on Quarantine were to consider the scope of the existing Conventions and to draft any necessary amendments of an emergency nature to take effect at the earliest possible date and to continue during the immediate post-war period. After studying the existing International Sanitary Conventions and the modifications required to enable them to meet the emergency conditions arising out of the war, the Quarantine Commission drew up and submitted to the Standing Technical Committee on Health for Europe two draft amending Conventions.

In their covering report the Commission pointed out that whilst wider revisions may be desirable at a later date the amendments suggested had been kept within the terms of the existing Conventions after due allowance had been made for the progress of medical knowledge since the 1926 and 1933 Conventions were drawn up—particularly in regard to yellow fever and the increasing speed and use of air travel.

The drafts were subsequently discussed and amended in Washington with representatives of the United States Public Health Service and the Pan-American Sanitary Bureau and were approved in principle by the Council of UNRRA at its second session in Montreal in September 1944. The drafts were then circulated to governments for comments and after these had been received and considered final texts were approved by the Central Technical Committee on Health and referred by the Administration of UNRRA to the State Department of the U.S.A. who have become the depository government for the 1944 Conventions. The Conventions came into operation on January 15, 1945, by which date the signatures of 17 of the governments of the United Nations, including France, Great Britain, China, Poland and the U.S.A. had been affixed.

Having briefly sketched the causes and steps which led to the drawing up and completion of these new modifying Conventions we can consider the more important changes brought about.

Firstly, there are the changes common to both Conventions. UNRRA becomes for the time being the international body for administering the Conventions instead of the Office international d'Hygiène publique in Paris, without prejudice, however, to the status of the latter which it is hoped will be able, at the expiry of the present Conventions, to resume its full functions.

The scope of the Conventions is also extended so as to include the exchange of epidemiological information additional to that required for the "Convention" diseases (i.e. plague, cholera, yellow fever, typhus and smallpox). With this wider epidemiological service UNRRA will be better able to discharge its responsibilities in connexion with "Displaced Persons". Central and Regional epidemiological intelligence Bureaux are now being organized and liaison is being established for the exchange of information, &c., with the Office international d'Hygiène publique in Paris—which is beginning again to function—and with the Pan-American Sanitary Bureau in Washington.

Some additions and alterations are also made in the definitions.

For instance, the term *typhus, typhus fever* or *exanthematous typhus* is now deemed to relate only to epidemic louse-borne typhus. The term *Stegomyia, Stegomyia* (*Aedes ægypti,* or *Stegomyia calopus* (*Aedes ægypti*), is deemed to include *Aedes ægypti* and any potential mosquito vectors of yellow fever.

The definition of "surveillance" has also been enlarged so as to cover modern American practice and in any territory, where the competent contracting party thinks fit, surveillance may include the requirement to report on arrival and afterwards, at such intervals during the continuance of surveillance as may be specified, to the Health Officer of the city, town, district or place to which the person placed under surveillance proceeds. (In other words, instead of a Medical Officer of Health being required to search for a person placed under surveillance the responsibility can be placed on the person to report to the Medical Officer of Health.)

The term "recent vaccination", which in the past has given rise to difficulties, is now taken as meaning evidence of successful vaccination not more than three years or less than fourteen days previously, or evidence of an immune reaction.

The Articles dealing with smallpox have also been strengthened and contacts, who in the opinion of the Sanitary Authority, are not sufficiently protected by recent vaccination, or by a previous attack of smallpox, may amongst other alternatives now be subjected to "observation." Governments are also urged to adopt the international forms for certificate of vaccination against cholera, yellow fever, typhus and smallpox as appended to the new Conventions which are modelled on those adopted at the British West Indian Quarantine Conference in 1943. As anti-typhus immunization has been developed since the 1926 and 1933 Conventions were drawn up a clause has been inserted urging Governments to take this means of protection into consideration for

persons at risk and to ensure that ships trading with areas infected with typhus shall carry a sufficient quantity of an effective insecticide.

Passing next to the main changes in the International Sanitary Convention of 1926 discretionary powers are conferred on Health Authorities at Ports to prohibit the embarkation of persons suffering from non-"Convention" communicable diseases, similar to those already given for the "Convention" diseases. Bills of health and consular visas are to be abolished as soon as the conditions of hostilities permit the establishment of effective epidemiological communications.

Whilst it was clear that a special agreement was required to deal with the immediate problem of displaced persons and that the clauses relating to immigrants in the 1926 Convention could not be altered to cover this problem, certain of the measures laid down at land frontiers have been modified. For instance, the prohibition of "observation" at land frontiers is rescinded, and sanitary stations can now be set up where typhus contacts can be deloused, and persons crossing the frontiers can be directed to such stations. The location of any such places and the measures taken thereat must, however, be notified immediately to other countries concerned and to UNRRA.

In the new International Sanitary Convention for Aerial Navigation the old system of sanitary documents is abolished. The Commander of an arriving aircraft must present an aircraft Declaration of Health and passengers must make a "Personal Declaration of Origin and Health", and it is urged that the international forms annexed to the Convention should be adopted.

The most important changes are the clauses covering yellow fever many of which implement the recommendations of the British Interdepartmental Committee on Yellow Fever Control.

For the first time complete reliance is placed on inoculation against yellow fever—provided it is properly carried out with an efficient vaccine—and all persons holding a valid anti-yellow fever inoculation certificate are exempt from quarantine restrictions on account of yellow fever. For a certificate to be valid the person must have been inoculated with a vaccine and by a method approved by UNRRA provided there have elapsed: (1) More than ten days and less than four years from the date of the inoculation; (2) less than four years from the date of a reinoculation performed within four years of the previous inoculation; (3) more than ten days and less than four years from the date of reinoculation performed after an interval of more than four years.

Anti-yellow fever inoculation is urged for all persons at risk, but as *purely a war measure* provision is made for the issue of "Certificates of Urgency" (but only in the most exceptional cases) to non-inoculated persons whose unobstructed passage is absolutely and immediately essential on ground of high policy. The movement of such persons during stops on air routes must, however, be restricted to adequately screened quarters which may only be left to re-enter the aircraft.

UNRRA is also made responsible for defining endemic yellow fever areas in consultation with the governments concerned or in the case of the Western Hemisphere, with the Pan-American Sanitary Bureau. All possible measures have also to be taken to establish the existence or non-existence of yellow fever in territories where endemicity is suspected and if a person in such areas dies within ten days of any undiagnosed febrile illness the importance is urged of taking liver specimens for histopathological examination. Moreover, as the occurrence of yellow fever may be missed in endemic areas, the taking of blood samples from persons suffering from an undiagnosed fever is also advocated.

The elaborate provisions made in the 1933 Convention for anti-amaryl aerodromes never worked. They are now abolished but definite obligations are imposed to keep aerodromes as free as possible from mosquitoes (by systematic measures for the suppression of breeding places and the destruction of the insects in all stages of their development).

Disinfestation of aircraft is made obligatory in certain cases and is extended to cover the destruction of insect vectors of diseases other than yellow fever with a view to preventing the introduction of dangerous vectors (e.g. of malaria) into new areas.

On medical questions UNRRA is guided by a Central Technical Committee on Health and early in September 1944 this Committee set up an expert Commission to advise them on quarantine questions, with power to co-opt other experts for particular purposes and to set up Sub-Commissions on special subjects.

At their first meeting the Quarantine Commission took steps to co-opt a number of experts on yellow fever and they have since presented two reports dealing particularly with the manufacture and control of yellow fever vaccine and the delineation of endemic yellow fever areas. The Commission's Memorandum on "Standards for the Manufacture and Control of Yellow Fever Vaccine" represents a combination of the views

of the British Interdepartmental Committee on Yellow Fever Control and of the experts in the United States, but as the subject is highly technical and the Memorandum is shortly to be published by UNRRA, further reference is outside the scope of this paper. As complying with the standard laid down, the Commission recommended approval of the yellow fever vaccines prepared by the National Institute of Health, the United States Public Health Service, and by the International Division of the Rockefeller Foundation. They also recommended that vaccine similarly prepared (except that the drying is not carried out to the same degree) in the yellow fever laboratories in Rio de Janeiro, in Bogota, and in the Wellcome Institute, London, should, for the time being, be approved for quarantine purposes provided the inoculations are performed by officials of a national yellow fever service or by other medical officers properly authorized by their governments to do so.

In addition to the responsibility placed on UNRRA to lay down standards with which yellow fever vaccine must conform, UNRRA is required, in consultation with the Governments concerned, and, as regards the Western Hemisphere, with the Pan-American Sanitary Bureau, to designate from time to time Institutes which are approved for testing the activity of yellow fever vaccines. In order that UNRRA may comply with this obligation, the Commission recommended that the necessary steps should be taken with a view to the following laboratories being designated as Approved Institutes namely:

Bagota—Yellow Fever Laboratory, National Yellow Fever Service.
Entebbe (Uganda)—Yellow Fever Institute.
Hamilton (Montana)—Rocky Mountain Laboratory, National Institute of Health.
London—Wellcome Research Institute.
New York—Laboratories of the International Health Division, Rockefeller Foundation.
Paris—The Pasteur Institute.
Rio de Janeiro—Yellow Fever Laboratory, National Yellow Fever Service.

In the delineation of endemic yellow fever areas in Africa the Quarantine Commission had the advantage of the views of the London Interdepartmental Committee on Yellow Fever Control [5], whose recommendations were adopted, and equal agreement was reached with the Pan-American Sanitary Bureau in regard to the Western Hemisphere.

For purposes of quarantine control the endemic area in Africa is defined as bounded by a line running from the mouth of the Senegal River along that river eastward to the 15° N. parallel of latitude, thence eastward along that parallel to the eastern border of the Anglo-Egyptian Sudan, thence northward along that north-western boundary of Eritrea to the Red Sea Coast, thence southward along the eastern coast of Africa to the southern boundary of the Protectorate of Kenya, thence westward along that boundary and southern boundary of Kenya Colony to its junction with the southern border of the Uganda Protectorate, and thence along this and the eastern border of the Belgian Congo to the 10° S. parallel of latitude, thence westward along that parallel to the west coast of Africa; thence northward along the west coast of Africa to the mouth of the River Senegal; including the islands in the Gulf of Guinea. The Committee also recommend that the *Balovale District* of Northern Rhodesia should be regarded as an endemic area, but for the time being the Port of Massawa in Eritrea should be excluded.

In the Western Hemisphere, for the purpose of quarantine control, the areas in the South American Continent which, for the time being, should be considered as endemic yellow fever areas are bounded by a line running from Turbo, in the Northern part of Colombia directly south to the northern boundary of Ecuador and then along the Eastern slopes of the Andes, below an elevation of 6,000 feet, to the northern boundary of Argentina, thence east along the 22nd parallel of latitude to the western border of Brazil, thence in a north-eastward direction to the junction of the States of Maranhoa and Para on the Atlantic Coast of Brazil, thence along the Atlantic and Caribbean coasts of South America to Turbo, excluding, however, the ports of Belem, in Brazil, Cayenne in French Guiana, Paramaribo in Surinam, Georgetown in British Guiana, La Guaira and Maracaibo in Venezuela, and Barranquilla and Cartagena in Colombia and the cities of Caracas in Venezuela and Bogota in Colombia. In addition, the Isthmus of Panama from the Canal Zone to the border of Panama and Colombia and the Ilhéos and Itabuna districts in the State of Bahia in Brazil are for the time being regarded as endemic yellow fever areas.

The Commission further suggested that the authorities of any territories at present included within the boundaries of an endemic area who may wish to have any part excluded, should furnish UNRRA with the following information in regard to the part of the territories involved: (*a*) Evidence in regard to the risk of yellow fever infection; (*b*) particulars of measures taken to control *Aedes ægypti* so as to maintain

AFRICA
YELLOW FEVER
ENDEMIC AREAS ~ 1944
INDICATED BY BLACK TINT.
OUTBREAKS 1944 - INDICATED
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SOUTH AMERICA
YELLOW FEVER
ENDEMIC AREAS ~ 1944
INDICATED BY BLACK TINT.
OUTBREAKS 1944 ~ INDICATED
BY BLACK SPOT.
MINISTRY OF HEALTH. W.J.R.

the index at a level of 1% or less; (*c*) particulars of all other measures taken to control the transmission of yellow fever within the area or its transmission outside; (*d*) any other information which might be of value to UNRRA in assessing the position.

In addition the Commission pointed out that areas within an endemic area may have to be reclassified from time to time and need no longer be considered endemic; when recognized, adequate, sustained control measures have been applied to eradicate mosquito vectors and to eliminate the conditions favouring the occurrence or spread of yellow fever. The Commission also placed on record the extent to which they had been impressed by the value of the eradication measures already carried out in certain parts of the Western Hemisphere. On the other hand, they stressed that failure to carry out such measures may lead to areas, previously considered to be non-endemic, being classified as "endemic areas".

The recommendations of the Quarantine Commission were duly accepted by the Central Committee on Health, and are now in process of being implemented by UNRRA.

To complete this outline of the 1944 Conventions it is necessary to point out that a clause in each Convention limits its duration to eighteen months from the date on which it came into force. Personally, I think the period is too short to obtain full knowledge of the working of the new provisions. Nevertheless, useful experience should be gained. Before the Conventions expire a formal International Conference is to be assembled to review the then position and draft new Conventions. Printed copies of the Conventions should soon be available but when they are studied it is well to bear in mind that International Conventions are not necessarily the opinions of one or even two sets of experts but are often a compromise between conflicting views. Delegates to Conferences have to concede some points and accept others if the largest measure of international agreement is to be reached.

To conclude this brief summary the following paragraph from McCallum's valuable review of International Hygiene [6] seems appropriate:

> "A study of the Conventions which resulted from the International Sanitary Conferences of 1892, 1894, 1903, 1912 and 1926 shows an interesting development in the practical application of more recent epidemiological knowledge—the role of the rat and the flea in plague, of the mosquito in yellow fever, and the lessened importance attached to fomites. Furthermore, quarantine practice under the Conventions has gradually been revised so as to differentiate the measures, applicable for each disease, according to its mode of spread."

The Conventions of 1944 now carry the practical application of epidemiological knowledge a step further—the protection afforded by inoculations against yellow fever, recognition of the value of inoculations against typhus and the value of effective insecticides. An attempt is also made to meet the old difficulty of validity of medical certificates by including International forms which governments are asked to adopt.

Finally, it is interesting to speculate what epidemic catastrophes might arise, as the result of the present turmoil, if International Conventions and Agreements based on our epidemiological knowledge had not been drawn up for, according to Creighton [7], no single thing stands out more clearly as the stroke of Fate in bringing the ancient civilization to an end than the vast depopulations and solitude made by the plague which came with the corn-ships from Egypt to Byzantium in the year 543, during the reign of Justinian. The 1944 Conventions were prepared under considerable difficulties and it seems fair comment to state that they are a definite attempt to strengthen and adapt the existing Conventions in anticipation of some of the difficulties which may face the United Nations and that, unlike most of the earlier Conventions, their preparation has not waited until pestilence was in our ports, our docks or our cities.

On the successful conclusion of the first stage in international collaboration for the prevention of epidemics it will be agreed that UNRRA is much to be congratulated.

A discussion followed in which Sir Alexander Macgregor, Dr. Leavell, Dr. J. A. H. Brincker, Dr. I. Corbett and Dr. Melville Mackenzie took part.

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